

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-4, and 7-49 are pending in the application, with claims 1, 44, 45, 48 and 49 being the independent claims. Claims 5 and 6 are sought to be cancelled without prejudice to or disclaimer of the subject matter therein. Claims 1, 4, 7 and 48 are sought to be amended. New claim 49 is sought to be added. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

***Allowable Subject Matter***

Applicants thank the Examiner for promptly identifying allowable subject matter. On page 6 of the Office Action, the Examiner identified claims 44-47 as allowed. The Examiner also indicated that claims 5-43 would be allowable too if rewritten in independent form including all of the limitations of their base claim and any intervening claims.

Accordingly, Applicants have amended independent claim 1 to include features of allowable claim 5. As amended, independent claim 1 is now in condition for allowance. Claim 7 has been amended to depend from amended claim 1. Claims 7-43 depend directly or indirectly from amended claim 1 and are also in condition for allowance. New claim 49 includes features of claims 1 and 6 and is also in condition for

allowance. Therefore, Applicants respectfully request that the Examiner consider and allow these claims.

***Rejections Under 35 U.S.C. § 112***

On page 2 of the Office Action, claims 4 and 48 were rejected under 35 U.S.C. § 112, second paragraph. Applicants have amended claims 4 and 48 to provide proper antecedent basis. Accordingly, Applicants respectfully request that this rejection be reconsidered and withdrawn.

***Rejections Under 35 U.S.C. § 102***

On page 3 of the Office Action, the Examiner rejected claims 1, 2 and 4 under 35 U.S.C. § 102(e) as being anticipated by U.S. Publication No. 2004/0146014 to Hammons, Jr. et al. (hereinafter Hammons). On page 4 of the Office Action, the Examiner rejected claims 1, 2 and 4 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,804,307 to Popovic (hereinafter Popovic). For the reasons set forth below, Applicants respectfully traverse these rejections.

Independent claim 1, as amended, recites:

1. A telecommunications system, comprising:  
a transmitter having an encoder that implements a multi-state trellis code; and  
at least two transmission elements coupled to the transmitter,  
wherein, during operation, the encoder:  
receives a group of input data bits,

selects an orthogonal space-time block code of a  
form  $C(x_1, x_2, \theta) = \begin{pmatrix} x_1 e^{j\theta} & x_2 \\ -x_2^* e^{j\theta} & x_1^* \end{pmatrix}$  from a set of space-time  
block codes, based on the group of input bits and a state of  
the encoder,  
selects at least two modulation symbols, one  
symbol for each of the at least two transmission elements,  
based on the group of input bits and the state of the  
encoder, and  
encodes the group of input data bits, using the  
orthogonal space-time block code and the at least two  
modulation symbols, for transmission by the at least two  
transmission elements.

As amended, claim 1 recites a combination of features indicated as allowable by the Examiner on page 6 of the Office Action. Support for the amendment to claim 1 is found throughout the written specification. See, for example, the written description that begins on page 27 of the present application and original claims 1 and 5. As amended, independent claim 1 is patentable over Hammons and Popovic.

Claims 2 and 4 depend from independent claim 1. Thus, claims 2 and 4 are patentable over Hammons and Popovic for at least the same reasons that independent claim 1 is patentable and further in view of the features recited in claims 2 and 4.

Applicants respectfully request that the Examiner reconsider and withdraw these rejections of claims 1, 2 and 4.

***Rejection Under 35 U.S.C. § 103***

On page 5 of the Office Action, the Examiner rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Hammons. For the reasons set forth below, Applicants respectfully traverse this rejection.

Claim 3 depends from independent claim 1. For at least the reasons noted above, claim 1 is patent over Hammons. Claim 3 depends from claim 1 and is patentable over Hammons for at least the same reasons that independent claim 1 is patentable and further in view of its own features. Applicants respectfully request that the Examiner reconsider and withdraw this rejection of claim 3.

***Objection To The Claims***

Page 2 of the Office Action states:

Claim 48 is objected to because of the following informalities: on line 1-2, please change recitation: "comprising the steps" to -- comprising the steps of:--

Applicants have review original claim 48 and respectfully note that original claim 48 recites "comprising the steps of:". Therefore, Applicants respectfully request that this objection to claim 48 be reconsidered and withdrawn.

***New Claim 49***

Applicants have cancelled dependent claim 6, which was noted by the Examiner as containing allowable subject matter, and included similar features in a new independent claim 49. Support for new claim 49 is found throughout the written specification. See, for example, original claims 1 and 6. Consideration and allowance of new claim 49 are respectfully requested.

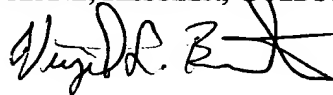
***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Virgil L. Beaton  
Attorney for Applicants  
Registration No. 47,415

Date: August 18, 2005

1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
(202) 371-2600

401802\_1.DOC